IN THE CLAIMS

Claim 1. (Currently Amended) A neutron generator for treating tumors, comprising:

a) an electron bombardment ion source having a gas-fillable ionization chamber defined by a repeller on one end of said ionization chamber and an anode defining an exit slit for extracting ions on an opposite end of said ionization chamber, ~~an ion exit slit~~ and focusing apertures ~~each being equal to or greater than 3 mm~~, said ion source having means for generating an electron beam which creates ions by collision with a gas in said ionization chamber wherein said exit slit and said focusing apertures are each at least 3 mm in width;

b) a high voltage acceleration stage for accelerating said ions towards a target; ~~and~~

c) a hollow needle sealed on one end, wherein said sealed end may be brought into close proximity with a tumor; and ~~an occluded reaction target which, upon impact by said ions, produces neutrons;~~

d) an occluded reaction target, which upon impact by said ions produces neutrons, wherein said reaction target is mounted within said hollow needle substantially towards said sealed end of said needle.

Claim 2. (Canceled)

Claim 3. (Original) A neutron generator according to claim 1, wherein:

said neutron generator is capable of delivering on the order of $\geq 10^8$ neutrons per second operating at 25 watts.

Claim 4. (Original) A neutron generator according to claim 2, wherein:

said electron bombardment source and said acceleration stage deliver an ion beam of a few tens of microamperes to said target operating at 75-500 KeV.

Claim 5. (Original) A neutron generator according to claim 1, further comprising:

d) means for steering a beam of ions produced by said electron bombardment source.

Claim 6. (Original) A neutron generator according to claim 5, wherein:

said means for steering is a rasterizing means.

Claim 7. (Original) A neutron generator according to claim 1, wherein:

said electron bombardment source includes a filament which operates at approximately 15 watts at approximately 3 volts.

Claim 8. (Original) A neutron generator according to claim 5, wherein:

said steering means operates at approximately $\pm$ 10-100 volts.

Claim 9. (Original) A neutron generator according to claim 2, wherein:

said exit slit is located approximately 5 cm from said needle and said needle is approximately 10cm long.

Claim 10. (Original) A neutron generator according to claim 1, wherein:

said generator produces 14.1 MeV neutrons.

Claim 11. (Withdrawn) A method for treating a tumor with an electron beam neutron generator, said method comprising:

a) coupling a hollow needle to the generator;

b) locating a thermonuclear target inside said needle at one end thereof;

c) locating the end of the needle with the target at a first location adjacent to the tumor;

d) directing ions produced by the electron beam into the needle onto the target.

Claim 12. (Withdrawn) A method according to claim 11, wherein:

said step of locating includes inserting the needle into the tumor.

Claim 13. (Withdrawn) A method according to claim 11, wherein:

said step of directing includes steering the ions to the shape of the tumor.

Claim 14. (Withdrawn) A method according to claim 13, wherein:

said step of steering includes rasterizing the ion beam.

Claim 15. (Withdrawn) A method according to claim 11, wherein:

the thermonuclear target is chosen to approximate the shape of the tumor.

Claim 16. (Withdrawn) A method according to claim 11, further comprising:

e) relocating the end of the needle to a second location at a different angle to the tumor; and

f) repeating said step of directing ions.

Claim 17. (New) A neutron generator according to claim 1, wherein said hollow needle is electrically insulated and coupled to a high voltage feedthrough, wherein said feed through accelerator provides said needle with negative potential.

Claim 18. (New) A neutron generator according to claim 1, wherein said hollow needle is sustained at ground potential and said feed through accelerator is coupled to

said electron bombardment ion source, wherein a high voltage feedthrough accelerator provides said electron bombardment ion source with positive potential.